ARRIQCP

Quality Control Player for Digital Cinema Packages

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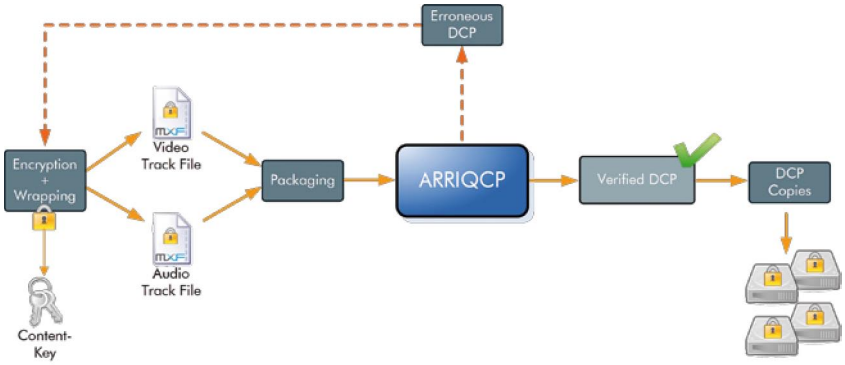
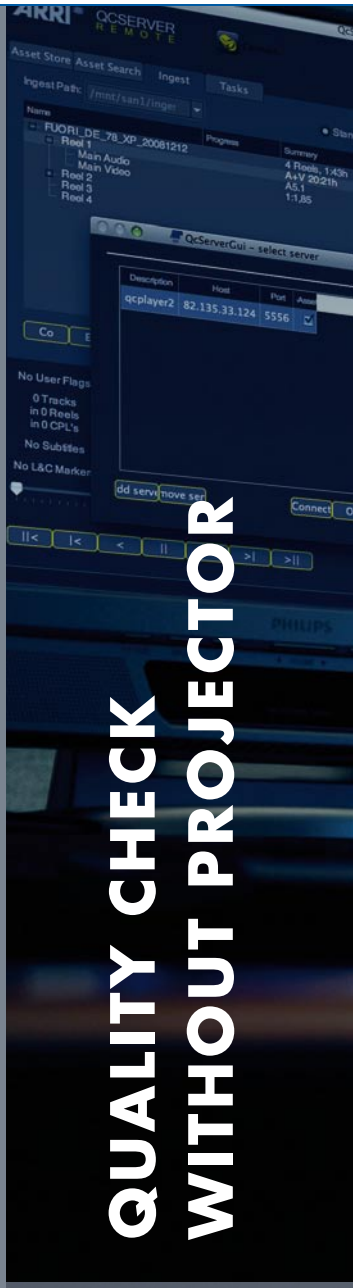
The ARRIQCP (ARRI Quality Control Player) is a DCP (Digital Cinema Package) QC-Server designed for use in Digital Cinema content production workflows and offers quality assurance as well as analysis of the Digital Cinema mastering process. It is designed for facilities creating Digital Cinema content and will bring security to the compliance of DCPs.

Besides playback functionality, the ARRIQCP performs an overall check of encoding, packaging and DCP validation, on top of file-integrity checks and content-analysing tasks.

The ARRIQCP is a DCP QC-Player application for the evaluation of DCPs and, through a cooperation with CineCert LLC and MikroM, makes use of the most precise specifications and standards possible.





Main Features

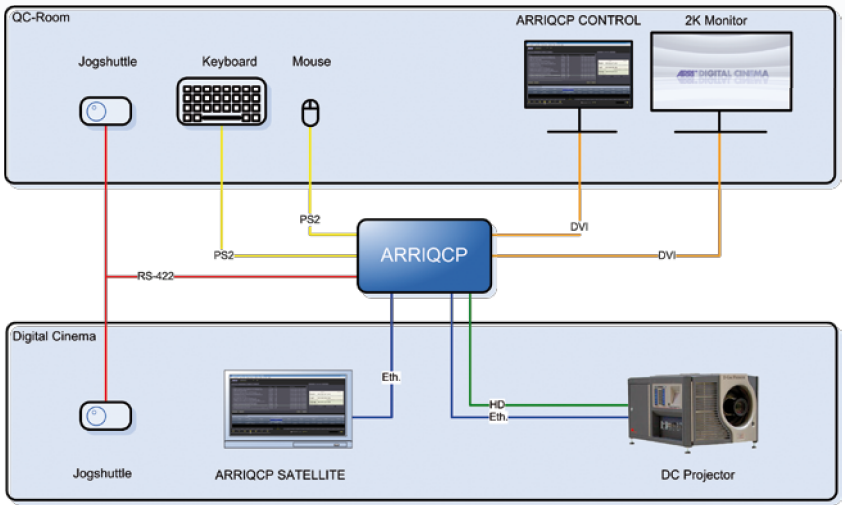
- Play compositions and/or single track files with precise transport control
- Remote control via TCP/IP and RS-422
- Test JPEG Interop and SMPTE DCP + KDM for standards compliance
- View detailed DCP metadata
- Edit CPL Entry Point, duration values and CPL markers
- Unencrypted HD-SDI/DVI-D interface with visible/invisible watermark for convenient machine room monitoring
- Immediate playback without ingest for "emergency screening"
- Capture and export timeline locators with reviewer notes
- Job Management for long-running analysis tasks

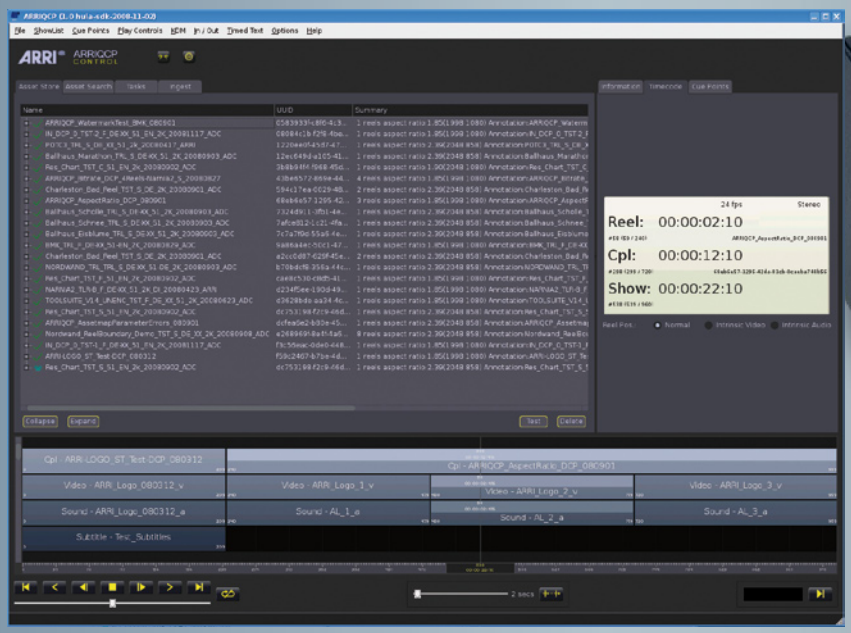
Play Compositions

Probably the most outstanding feature of the ARRIQCP is its ability to playback DCPs directly to an HD or 2K monitor over Dual Link HD-SDI or DVI-D, providing an initial first stage quality check without using a Digital Cinema projector. This feature represents a previously missing link in DCP creation and will mean facilities can speed up their content checking.

Playback controls allow common playback features (such as Play/Reverse, Jog, Shuttle Jump and Loop) in various playback modes (2K, 2K Sub-Res-Level from 4K, 3D, left or right from 3D). The ARRIQCP will also allow reel boundary checking with a user-specified pre-roll time. The user can set flags with a short description of the non-conformity that can be exported as text files when detecting picture or audio impairment.

A remote control Jog Shuttle connected over RS-422 will give the same ease of use as a VTR. During playback, time-code information is shown and the user can decide whether to receive the reel, the composition, or the show timecode.

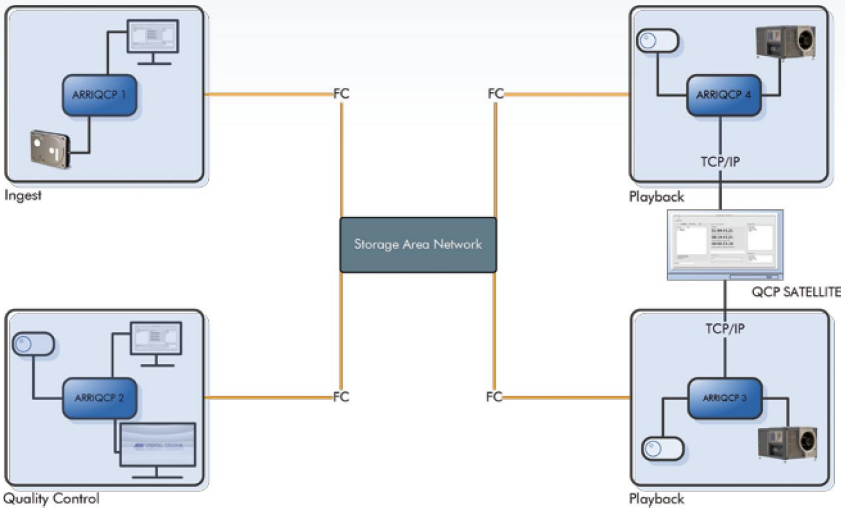




Satellite Mode

The ARRIQCP can be controlled via remote control over TCP/IP. From the ARRIQCP SATELLITE client one could playback individual CPLs on remote controlled ARRIQCPs (for example for controlling screening rooms).

At the same time media can be ingested into the centralized AssetStore on the SAN from other QCP Stations or quality check tasks performed on another station. All servers share one AssetStore, which makes ARRIQCP systems suitable for distribution on a centralized SAN.



Security

The ARRIQCP is equipped with an invisible watermark that is embedded into the picture. In case of unauthorized copy, the date, time and location of a security leak can be fully traced; a visible watermark is also superimposed over the picture for added security. A KDM for the ARRIQCP is still required for playback of encrypted material.

DCP and KDM Compliance Testing

In case a DCP is ingested to the system a validity check is performed, metadata in Composition Playlist (CPL), Packinglist (PL) and Assetmap is parsed and all links to track files are tested for missing links. Furthermore an XML schema test can be performed and KDMs checked for JPEG Interop and SMPTE standards compliance; for more time consuming tests, like JPEG2000 Interoperability, the user decides what tests to perform. Users are able to create sets of tests to be performed on the different assets of a DCP. These tests might include comparison of aspect ratios recorded in the CPL and the JPEG2000 file, JPEG2000 file size checking, PKL signature test, PKL Assetmap matching, message digest test, CPL signature test, track file reference test, essence encoding consistency test, duration consistency, and encryption key ID test. Status messages of failed or passed tests are collected and stored for later review or exported for reporting or communication purposes.

Easy Operation

Job Management allows a clear overview of currently processed and pending jobs. In case of urgent tests a complete ingest of content could be too time consuming, so it is possible to perform an immediate playback for “emergency screening”. If the content is on a SATA swap hard disk, movies can be played back in real time. For easier communication between facilities an updated CPL can be exported to disclose particular changes that should be performed for a valid package.

Technical Data

Operating System	CentOS Redhat EL 4.7
Processor	AMD Opteron 2214
Memory	4 GB DDR2 DIMM
Image Decoding	DCI JPEG2000 2K or 2K layer out of 4K, 12-bit 4:4:4 XYZ/RGB @ 250Mbit/s DCI 3D JPEG2000 48p via Dual Link HD-SDI, 4:2:2 (YCbCr / YCxCz) MPEG-2 MXF Interop, 8-bit 4:2:0 YCbCr @ 80 Mbit/s
Video Output	Dual Link HD-SDI DVI-D-Port MCA106
Output Resolution	2048 x 1080 24p 4:4:4 12-bit (Dual Link) 2048 x 1080 48 fps 4:2:2 10 bit (3D Playback)
Audio Output	AES/EBU D-Sub DB-25 connector
Monitor Port	DVI-I, VGA D-sub 15-pin
Storage	1 TB RAID-1 Array
User Interface	Mouse / Keyboard / Jog Shuttle via RS-422 (not included)
Interfaces	Promise SuperSwap 1600 or CRU DataPort DX115 DVD Drive Gigabit Ethernet, 2x RJ-45 100 Mbit Ethernet, 4 x RJ-45 1x RS-422 serial control Port 1x eSATA 3x USB 2.0 optional: QLogic Fibre Channel Card
Security	128-bit AES Content Encryption 2048-bit RSA KDM Encryption Philips CineFence™ Video and Audio optional: Thomson NexGuard™ Forensic Watermarking TI CineLink II™ link encryption
Dimensions	4U Rack Unit

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